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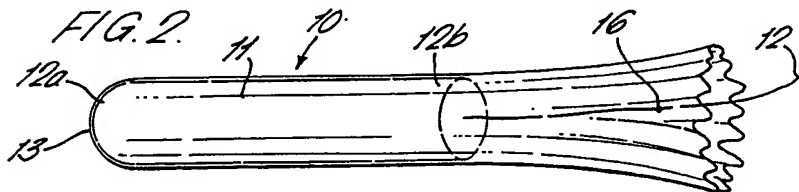
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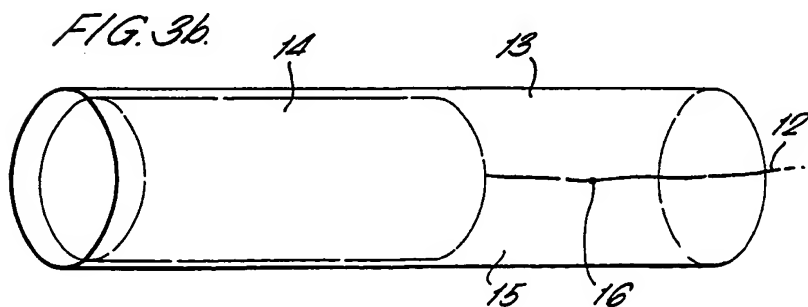
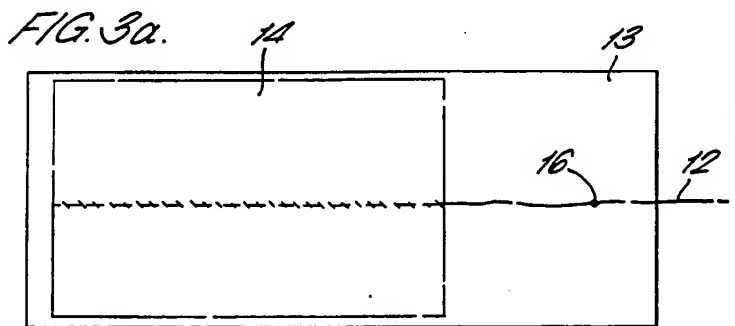
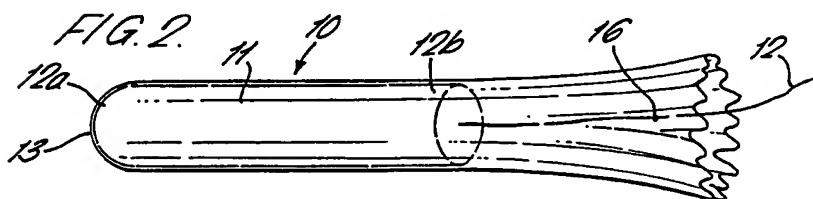
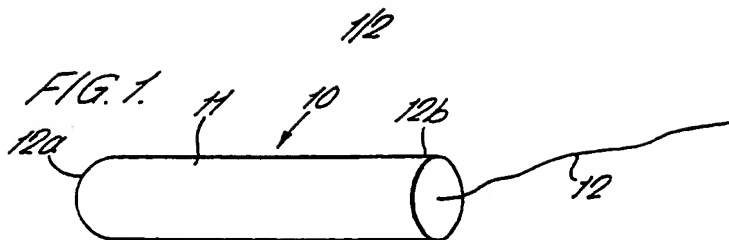
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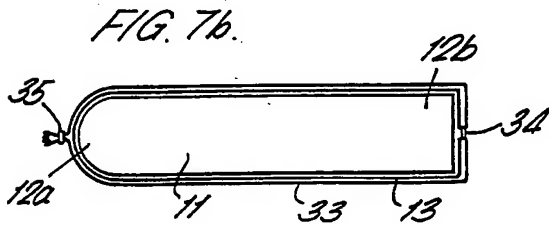
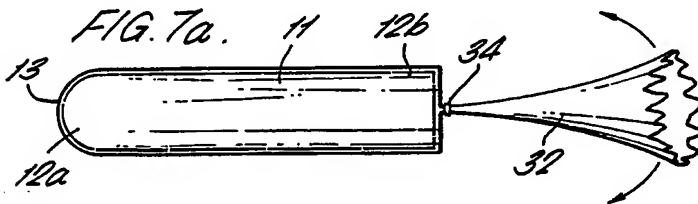
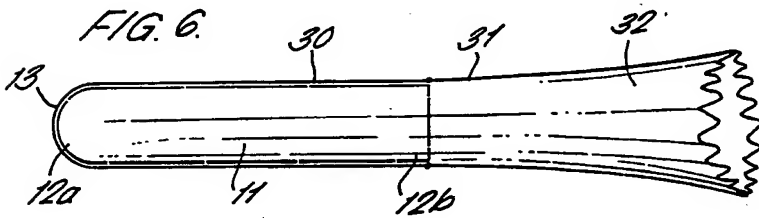
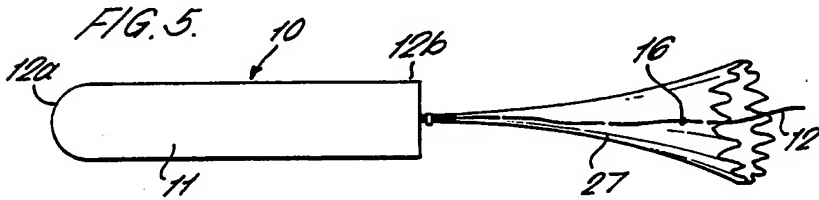
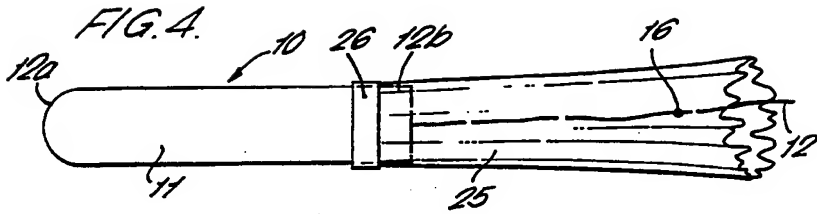
INT CL⁴ A61F

(54) **Improvements in digital tampons**

(57) The present invention relates to a tampon comprising a body (11) of compressed absorbent material and a skirt (16) fixed to and extending from one end of the tampon to form a finger cover.







IMPROVEMENTS IN DIGITAL TAMPONS

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The invention relates to improvements in sanitary tampons for digital insertion into the body of the user and in particular to such tampons having
10 hygienic finger covers.

Digital tampons have been widely used for many years and their use has been limited by a number of disadvantageous features. Most importantly the delicate tissue of the vagina is at risk of damage
15 and possible infection by non-sterile fingers and nails. This problem has been largely avoided by the use of tampon applicators which reduce this risk, but such tampons leave the user with an applicator to dispose of, which in some circumstances is not
20 convenient.

A further disadvantage of prior art digital tampons is that the tampons themselves can chafe and abrade the vaginal tissue during insertion of the tampon. The latter disadvantage has led to the
25 development of tampons which are overwrapped with a membrane having special characteristics, which remains in place during insertion and provides protection against abrasion by the tampon. In some of these tampons, when the wrapping comes into
30 contact with the menstrual fluids the wrapping dissolves and disperses allowing the tampon to expand and fully utilise its absorption potential. Other wrappers have been developed which are permeable to but not soluble in menstrual fluids. However, even
35 with these improved wrapped tampons control of the tampon during insertion is limited due to the

restrictions in handling for hygienic reasons which
5 results in discomfort for the user.

It is therefore an object of the invention to
provide an improved digital tampon for convenient
hygienic insertion which eliminates the problems
10 outlined previously.

The present invention provides a tampon
comprising a body of compressed absorbent material
and a skirt fixed to and extending from one end of
the tampon to form a finger cover.
15

Preferably the tampon body is overwrapped with
a permeable membrane which is insoluble in menstrual
fluid.

20 In a preferred embodiment the skirt is formed
integrally with the permeable membrane or the skirt
may be attached to the tampon body by soluble or
insoluble means.

25 A withdrawal cord is preferably securely
attached to the tampon body and may also be attached
to at least one point on a free end of the skirt.
Alternatively the skirt may be extended to form
withdrawal means for the tampon.

30 Preferably the length of the skirt is such that
it can be used to cover the tampon to provide an
outer wrapping, and the material is preferably
impermeable to water.

35 Further features and advantages of the

invention will be apparent from the following
5 description, by way of example of one embodiment of a
digital tampon according to the invention, the
description being read with reference to the
accompanying drawings in which:

Fig. 1 is a perspective view of a prior art
10 digital tampon;

Fig. 2 is a perspective view of a digital
tampon according to the invention;

Fig. 3a is a side elevation of the digital
tampon of Fig. 2 prior to the final stage of
15 manufacture;

Fig. 3b is a perspective view of an alternative
digital tampon prior to the final stage of
manufacture;

Fig. 4 is a side elevation of an alternative
20 embodiment of a digital tampon according to the
invention.

Fig. 5 is a side elevation of another
embodiment of a digital tampon according to the
invention.

25 Referring first to Fig. 1, a digital tampon
comprises a body 11, being a cylindrical wad of
compressed absorbent material and a withdrawal cord
12 securely fixed to the tampon body 11. The body 11
preferably has a rounded distal end 11a, for ease of
30 insertion, and a flattened proximal end 11b, the cord
12 being fixed at the proximal end. This is a
typical known tampon, although the invention applies
to all types of digital tampons.

Fig. 2 shows a digital tampon according to the
35 invention which has been overwrapped with a membrane
13.

Tampon 10 is manufactured from a wad of
5 absorbent material 14 (see Fig's. 3a or 3b) being of
any suitable shape to which is attached by any
suitable means such as stitching, interweaving,
interplaiting etc. the withdrawal cord 12. The
absorbent material 14 is wrapped around with membrane
10 13 to form a covering, with an excess of membrane 13
at the proximal end 11b. The absorbent material 14
and membrane 13 are then compressed in a suitable
manner such that they bond together to form an
overwrapped tampon 10. As the absorbent material 14
15 and the portion of the membrane 13 covering the wad
14 are compressed, the remaining portion of
the membrane 13 which extends past the proximal end
12b of the tampon body 11 is not compressed and
therefore forms a skirt 15 flaring from the proximal
20 end 12b of the tampon body 11 around the withdrawal
cord 12.

The skirt 15 forms a finger cover which allows
the user to insert the tampon 10 without the need for
the users fingers to contact the vagina, and allows
25 the user to get a firmer grip on the tampon 10
without touching the tampon body 11 to give better
control during insertion.

The choice of material for the overwrap
membrane 13 is extremely important and known
30 materials which may be used include polyethylene and
polypropylene, but the invention is by no means
limited to these materials only. The material must
fill a number of characteristics in that it must be
non-soluble in menstrual fluids, otherwise the skirt
35 15 would only be of use during insertion of tampons
10 and not thereafter for withdrawal. The material

must not retard expansion of the absorbent fibre and
5 must be permeable to menstrual fluids such that it
does not restrict the absorption properties required
of the tampon 10. Furthermore, the material must be
such that the skirt does not act as a wick which
10 would render the tampon 10 useless for its required
purpose. The outer surface of the material should
preferably be as smooth as possible for easy
insertion into the users body and to reduce abrasion
and chafing and it must also be tear resistant.

In an alternative embodiment of the invention
15 as shown in Fig. 4, a skirt 25 is attached to a
tampon body 11 after compression of the absorbent
material 14. In this case the tampon may be
overwrapped but this is not necessary. The skirt 25
is attached by means of a sleeve 26 or other suitable
20 means, which attaches it securely to the proximal end
12b of the tampon body 11.

Where the finger cover 25 is not required for
removal of the tampon 10, the attachment means may be
H₂O soluble, which allows for detachment of the
25 skirt 25 when the tampon 10 is in position.

Fig. 5 shows another alternative embodiment of
the invention, in which a skirt 27 is attached to the
withdrawal cord 12 after the compression process of
an overwrapped or a plain tampon 10.

30 In a preferred embodiment of the invention as
shown in Figs. 2, 4 or 5, the withdrawal cord 12 is
attached to the skirt 15, 25, 27 at point 16 towards
the extremity of the skirt, by a spot-weld or other
suitable means. Thus, when the tampon 10 is
35 unwrapped from its packaging for use, as the
withdrawal cord 12 is pulled out to its full length,

the finger cover 15 is conveniently extended with it.

5 In another embodiment of the invention (not shown), the withdrawal cord 12 may be omitted altogether and the finger cover 15, 25 is then used as the withdrawal means for the tampon 10. In this embodiment of the invention, the length of skirt 15, 25 is extended to the standard length of a withdrawal cord 12. The material used for the skirt 15, 25 must of course have adequate strength to act as the withdrawal means in addition to the properties listed above.

15 In another embodiment of the invention (Figs. 6 and 7), the overwrap membrane 13 comprises two sections 30, 31. A first section 30 is permeable to menstrual fluid, whilst a second section 31 is fluid repellant. The membrane 13 may either comprise a single material a portion of which has been treated to give the second set of properties or two materials grafted together. In this way the finger cover 32 can additionally be used to form the tampon secondary wrap 33. Referring first to Fig. 7a, tampon 10 in 25 manufactured such that the tampon body is overwrapped with first section 30 and the skirt 32 is made from second section 31. The skirt 32 is twisted at the proximal end 12b of the tampon body 11 to form a seal 34 and then folded back over the tampon body 11. The ends of skirt 32 are then twisted or closed by other 30 suitable means to form seal 35 such that the non-permeable material 31 forms the secondary wrap 33.

Obviously any suitable and convenient means of forming seals 34, 35 may be used.

35 The advantage of this embodiment of this invention is that no additional secondary wrapping is

required.

5 Although the disclosure is made with reference
to digital tampons, the finger cover may be adapted
for use with applicator tampons.

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CLAIMS:

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1. A tampon comprising a body of compressed absorbent material and a skirt fixed to and extending from one end of the tampon to form a finger cover.
 - 10 2. A tampon as claimed in claim 1 in which the tampon body is overwrapped with a permeable membrane which is insoluble in menstrual fluid.
 3. A tampon as claimed in claim 1 or claim 2 in
15 which the skirt is formed integrally with the permeable membrane.
 4. A tampon as claimed in claim 1 or claim 2 in which the skirt is attached to the tampon body.
20
 5. A tampon as claimed in claim 4 in which the attachment means are soluble in menstrual fluid.
 6. A tampon as claimed in any one of claims 1 to 5
25 further comprising a withdrawal cord securely attached to the tampon body.
 7. A tampon as claimed in claim 6 in which the cord is attached to at least one point on a free end
30 of the skirt.
 8. A tampon as claimed in any one of claims 1 to 4 in which the skirt is extended to provide withdrawal means for the tampon.
35
 9. A tampon as claimed in any one of the preceding

claims in which the length of the skirt is such that
5 it can be used to cover the tampon to provide an
outer wrapping.

10. A tampon as claimed in claim 9 in which the
material of the skirt is impermeable to water.

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11. A tampon substantially as hereinbefore
described with reference to and as shown in the
accompanying drawings.

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